



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/512,030	06/21/2005	Tito Bacarese-Hamilton	2006571-0003	2254
24280 7590 07/22/2009 CHOATE, HALL & STEWART LLP TWO INTERNATIONAL PLACE BOSTON, MA 02110				
EXAMINER NUR, ABDULLAH				
ART UNIT 2877		PAPER NUMBER		
NOTIFICATION DATE 07/22/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdoCKET@choate.com

Office Action Summary

Application No.

10/512,030

Applicant(s)

BACARESE-HAMILTON ET AL.

Examiner

ABDULLAHI NUR

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 8, 10, 13-25 and 27-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8, 10, 13-25 and 27-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 5/28/2008 has been entered.

Response to Arguments

Applicant's argument filed on 2/19/2009 with respect to claims 1-29 is acknowledged.

Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4, 5, 7, 10, 13-19, 22, 23, 25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naghieh et al. (US Patent # 6,754,414 B2)[hereinafter Naghieh], previously cited, in view of Kain et al. (US Patent # 5,578,818) [hereinafter Kain], previously cited, and further in view of Motokawa et al. (JP357084339A) [hereinafter Motokawa], newly cited.

As to claims 1, 7 and 10, Naghieh teaches a device for analyzing fluorescent signals emitted from fluorescently labeled material bound to a microarray assay of the type having at least one microspot deposited on a substantially flat surface, the device comprising: an illuminator 14 for illuminating the fluorescently labeled material at an appropriate wavelength to induce fluorescence; a detector 36 for detecting fluorescent signals emitted by the fluorescently labeled material; a signal processor 38 for processing the signals detected; an optical system having an excitation optical path and a detection optical path (Fig.3); the illuminator comprising a light emitting diode (column 3, line 66) arranged to illuminate the material with incoherent illumination and to simultaneously illuminate all, or a substantial portion of-at least one microspot (column 6, lines 20-21).

Naghieh is silent to the excitation and detection optical paths being substantially coaxial. Kain teaches LED scanning system wherein the excitation and detection optical paths being substantially coaxial (Fig.1) to provide a compact, inexpensive system, that enhance the detection of signal radiation emanating from a sample.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a system wherein the excitation and detection optical paths being substantially coaxial, in order to provide a compact, inexpensive system that enhance of the detection of signal radiation emanating from a sample.

Naghieh is silent to the polarizing filter positioned in the excitation optical path and a second polarizing filter positioned in the detection optical path and orientated at right angles to the first polarizing filter such that the two filters comprise crossed polarizers positioned in the excitation and the detection optical paths respectively. Motokawa teaches fluorescence polarizing apparatus wherein the a light source irradiates by way of an excitation side of spectrometer and a polarizer and a sample emitting fluorescence that reach a detector by way of a second polarizer which is oriented at right angles to the first polarizer (abstract; Fig.1) to filter out undesirable wavelengths, thereby enhancing resolution.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate polarizers taught by Motokawa into the invention of Naghieh in order to filter out undesirable wavelengths, thereby enhancing resolution.

As to claim 2, Naghieh in view of Kain, and further in view of Motokawas teaches all as applied to claim 1, and in addition Naghieh teaches an excitation filter 16

positioned in the excitation optical path to filter out longer wavelengths emitted by the LED before they reach the material to be analyzed.

As to claim 4, Naghieh in view of Kain, and further in view of Motokawa teaches all as applied to claim 1, and in addition Naghieh teaches comprising an emission filter 32 positioned in the detection optical path to filter out any directly reflected illumination from the material.

As to claim 5, Naghieh in view of Kain, and further in view of Motokawa teaches all as applied to claim 1, and in addition Naghieh teaches a flat surface comprising a glass slide (column 3, lines 53-55).

As to claim 13, Naghieh in view of Kain, and further in view of Motokawa teaches all as applied to claim 1, and in addition Naghieh's apparatus is equally capable providing an oscillating electrical source driving the light emitting diode such that the intensity of light from the diode is modulated in time.

As to claim 14, Naghieh in view of Kain, and further in view of Motokawa teaches all as applied to claim 1, and in addition Naghieh teaches a device wherein the fluorescently labeled material is bound to plural microspots, and the microspots are deposited in an array on the substantially flat surface (column 3, lines 43-55).

As to claim 15, Naghieh in view of Kain, and further in view of Motokawa teaches all as applied to claim 1, and in addition Naghieh teaches the flat surface comprising a plate used for microarray assay or immunoassay type tests (column 3, lines 43-55).

As to claims 16-19, Naghieh in view of Kain teaches all as applied to claim 1, and in addition Naghieh teaches a device wherein the light emitting diode illuminates an

area at the location of the microspot having a diameter in the said range (column 3, lines 40-43).

As to claim 22, Naghieh in view of Kain, and further in view of Motokawa teaches all as applied to claim 10, and in addition Naghieh teaches a method further comprising: providing fluorescently labeled material bound to plural microspots, the microspots deposited in an array on a substantially flat surface (column 3, lines 50-53).

As to claim 23, Naghieh in view of Kain, and further in view of Motokawa teaches all as applied to claim 10, and in addition Naghieh teaches a method further comprising: placing an excitation filter 16 in an excitation optical path between the LED and the at least one microspot, the excitation filter substantially preventing longer wavelengths emitted by the LED from reaching the at least one microspot (column 5, lines 53-67).

As to claim 25, Naghieh in view of Kain teaches all as applied to claim 10, and in addition Naghieh teaches an emission filter 32 in a detection optical path between the at least one microspot and the optical detector, the emission filter substantially preventing any illumination directly reflected from the sample from reaching the detector (column 6, lines 29-34).

As to claims 27, Naghieh teaches method of analyzing signals emitted from a fluorescently labeled material, wherein the material is bound to at least one microspot deposited on the substantially flat surface of a microarray, the method comprising the steps of: providing, along an excitation optical path, incoherent illumination 14 derived from a light emitting diode (LED) at an appropriate wavelength to cause fluorescence from the fluorophore in the at least one microspot;

illuminating simultaneously all or a substantial portion of the at least one microspot with the incoherent illumination (column 6, lines 20-21); and
detecting with an optical detector 36 the fluorescence emitted along a detection optical path by the at least one microspot once the at least one microspot has been illuminated;

Naghieh is silent to the excitation and detection optical paths being substantially coaxial; placing a polarizing beam splitter at a location having coincidence of an excitation optical path between the LED and the at least one microspot and a detection optical path between the at least one microspot and the detector. Kain teaches LED scanning system wherein the excitation and detection optical paths being substantially coaxial (Fig.1) to provide a compact, inexpensive system, that enhance the detection of signal radiation emanating from a sample; polarizing beam splitter 24 to split impinging light into components (note that a polarizer is a dichroic material that functions to convert a randomly polarized beam of light into respective desired components)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a system wherein the excitation and detection optical paths being substantially coaxial, in order to provide a compact, inexpensive system that enhance of the detection of signal radiation emanating from a sample; to incorporate the dichroic beam splitter of Kain into the invention of Naghieh in to split impinging light in to respective components.

Claims 3, 8, 20, 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naghie in view of Kain, in view of Motokawa, and further in view of well known practices in the art.

As to claims 3 and 24, Naghie in view of Kain, and further in view of Motokawa teaches all as applied to claims 2 and 10. Naghie in view of Kain, and further in view of Motokawa is silent the excitation filter being a short band pass filter. The Examiner takes Official Notice the fact that short band filter is well known to be used in optical apparatus to transmit optical signals having wavelengths that are less than a nominal maximum wavelengths.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a short band pass filter in Naghie apparatus, in order to transmit optical signals having wavelengths that are less than a nominal maximum wavelength.

As to claims 8, 20 and 21, Naghie in view of Kain, and further in view of Motokawa teaches all as applied to claim 7. Naghie in view of Kain, and further in view of Motokawa is silent the signal processor comprises a phase sensitive detector; signal processor comprising a lock-in amplifier. The Examiner takes Official Notice the fact that use of processor in phase sensitive with a detector is well known practice in the art in order to provide optimum detection sensitivity; use of lock-in amplifier to amplify light signal and further provide the added benefit of rejecting ambient noise in the signal through detection means.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to render the signal processor of Naghieh in view of Kain, and further in view of Motokawa comprise a phase sensitive detector; lock-in amplifier, in order to provide optimum detection sensitivity; to amplify light signal and further provide the added benefit of rejecting ambient noise in the signal through detection means.

Conclusion

Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In *re Selmi*, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In *re Fischer*, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In *re Boon*, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In *re Chevenard*, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the **next reply** after the Office action in which the well known statement was made."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdullahi Nur whose telephone number is **571 270 1298**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A.N./
Abdullahi Nur
Patent Examiner,
Art Unit 2877

**/Kara E Geisel/
Primary Examiner,
Art Unit 2877**